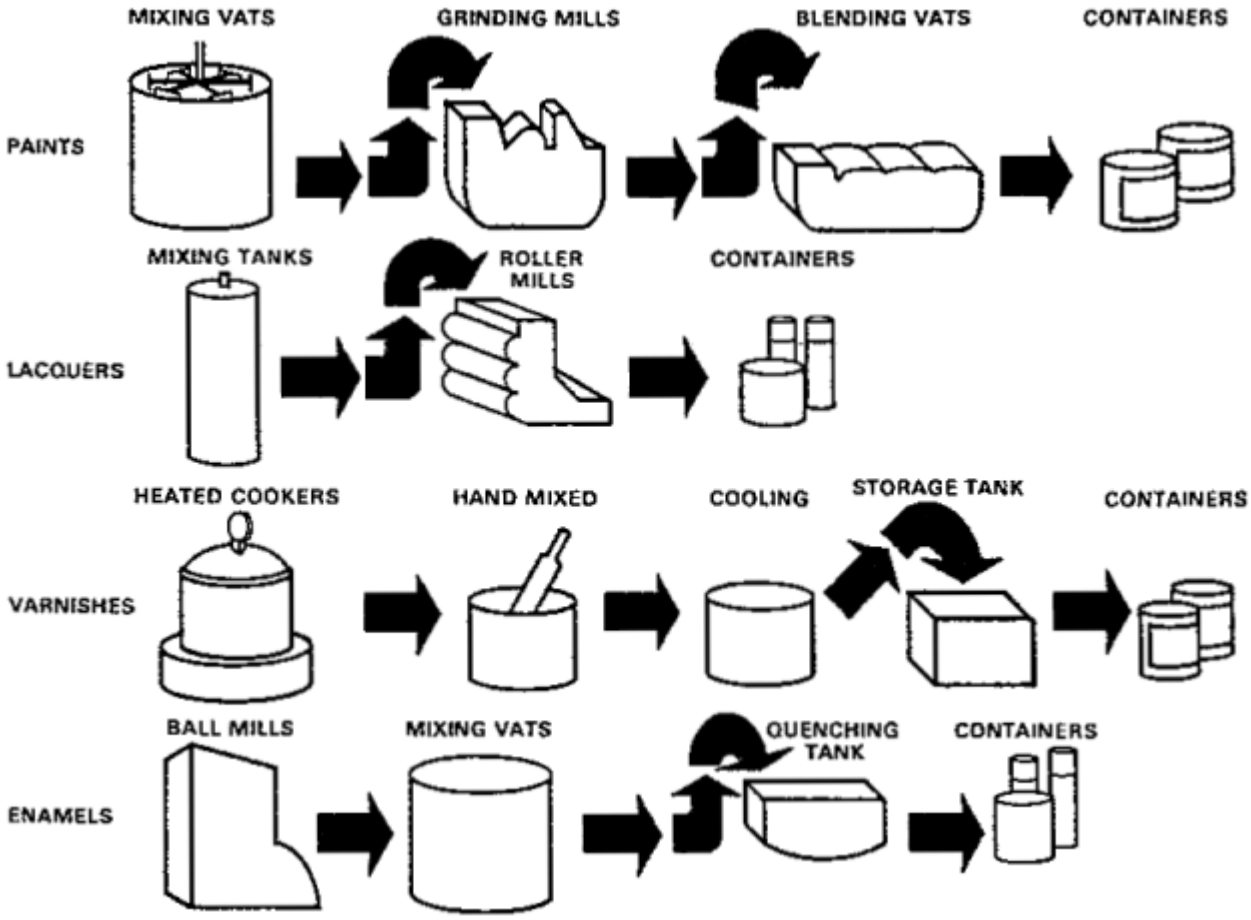
NCDOL N.C. Department of Labor	**NORTH CAROLINA DEPARTMENT OF LABOR**	**No.** **28-3**
	OSH DIVISION	**Date:** **10/2009**
	OSHNC INDUSTRIAL DATA REPORT	**Pages:** **3**

Industry: **Chemicals and Allied Products**	Sub-Group: **Paints, Varnishes, Lacquers, Enamels**
SIC: **2851**	NAICS: **325510**

PROCESS DESCRIPTION: Raw materials are received by rail, truck or package. 1) For paints the processing consists of a series of mixing and grinding operations. The first mixing stirs the oils and pigments together in a "pug mill" and finer mixing may be done in iron mills or pebble mills to grind the pigments and liquid filler prior to their being blended. 2) For lacquers, nitrocellulose or synthetics and solvents are mixed together in vertical tanks after which resins and rosins are added to produce lacquer base. Coloring pigments are added and the colored lacquer base is then dispersed with paint rolling mills. 3) For varnishes, linseed oil, castor oil and gum resins are placed in kettles or "cookers" which are heated by open flames, electrically or by steam and mixed by hand to polymerize. The polymerized mixture is allowed to cool, pumped into storage tanks and thinned with a solvent to form the finished varnish. 4) For enamels, the raw materials (refractories, fluxes, colors, opacifiers, electrolytes and floating agents) are ground and mixed in ball mills and mixing tanks. After mixing the molten enamel is quenched by being poured into a large tank of water. In all cases the final steps are filling various size containers with the products and then labeling. The products are finally stored or shipped.

PROCESS FLOW:



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Hazards Analysis

Major Hazards			Other Hazards		
Location	**Item**	**Hazard**	**Location**	**Item**	**Hazard**
Throughout	Flammable liquids and vapors	Burns and/or death from fire and explosion	Enamel quenching area	Hot water and/or molten enamel	Burns and death
	Dust, vapors, liquids from lead, solvents, resins	Lead poisoning, lung, liver and blood damage, pneumoconiosis, asphyxiation, dermatitis			
	Mechanical handling equipment	Vehicle-vehicle, vehicle-pedestrian and single vehicle accidents			
Production areas	Mixers, grinders, mills	Crushes, bruises, amputations	Drying areas	Gas fired areas	Fire and explosion
	Unguarded tanks, vats pits, high work platforms	Falls, drowning, burns			
Mixing and grinding areas	Belt, chain and gear drives	Amputation, fractures	Liquid handling areas	Caustic or other harmful chemicals	Chemical burns
			Material handling areas	Containers	Back sprains
			Throughout	Wet floors	Slips and falls

Key OSHNC Standards

Reference	29 CFR 1910 — General Industry Standards
Subpart D	Walking and working surfaces
Subpart E	Exit Routes, Emergency Action Plans, and Fire Prevention Plans
Subpart I	Personal protective equipment
Subpart O	Machinery and machine guarding
1910.106	Flammable and combustible liquid handling and storage

SIC: 2851
NAICS: 325510

1910.122 – 1910.126	Dipping and coating operations
1910.146	Permit-required confined space entry
1910.151	Medical services and first aid (especially eye wash and emergency shower stations)
1910.1000	Air contaminants
1910.1200	Hazard Communication

Inspection Analysis

The inspection should begin where the raw materials are received by checking for mechanical handling and material handling hazards, as well as for any electrical equipment that may be used where flammable liquids are being unloaded. Mechanical handling equipment should also be checked to determine approval for any hazardous locations that it may enter. Once inside the production areas the inspector must determine if Class I hazardous locations exist and inspect electrical equipment to note approval for this location. The mixing and grinding equipment must be checked for unguarded power transmissions as well as unprotected points of operation. Open pits and vats and above-floor level work transmissions as well as unprotected points of operation. Around the production and liquid handling areas all chemicals and processes must be checked for need and/or use of personal protective equipment including an emergency shower and eye wash. Walking and working surfaces must be kept dry to avoid slips and falls. Any machinery or vats containing flammable liquids must be checked for grounding of static electricity and the piping apparatus and containers must be bonded and grounded in the dispensing areas. The shipping dock must be inspected if apart from the receiving dock.

Other Pertinent Comments: